

## Problematic native species: noisy miner (*Manorina melanocephala*)

- Noisy miners aggressively exclude almost all birds but especially smaller species.
- This reduces ecological function and causes species decline.
- The overabundance of noisy miners, largely facilitated by human mediated habitat loss and modification, is listed as a Key Threatening Process nationally under EPBC Act (1999), and in New South Wales and Victoria.
- Lethal control of noisy miners is a suggested management response, but the results are highly variable.



**Action:** We need to understand whether culling is effective to inform future decision-making that is ethical and ecologically justifiable.

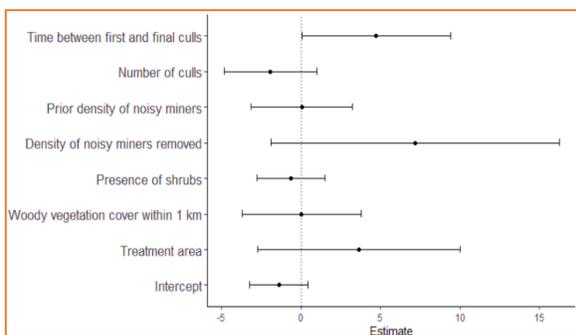
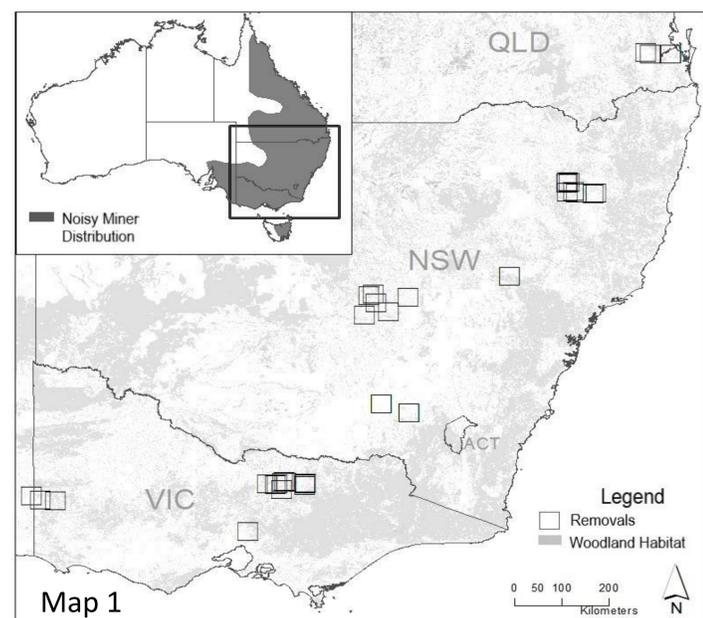
# Lethal control of native species to save *other* native species?

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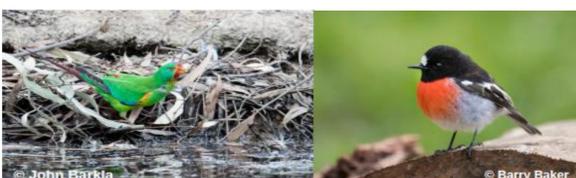
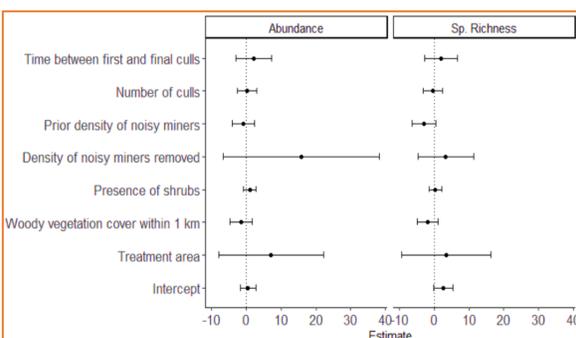
## Approach

- Identified 45 sites where noisy miners were removed from published (n= 31), unpublished (n = 7) and unsanctioned (n = 7) sources (Map 1) - collecting data from authors and phone surveys.
- Modelled removal success in the form of reduction in noisy miner density, and 25% increase of one of small bird sp. richness or abundance, and then highlighted the relative importance of predictor variables. Also explored whether sites that had a clear reduction in noisy miner density were more likely to have an increase in small bird occurrence.
- Predictor variables for all sites and potentially associated with success included treatment area, woody vegetation cover within 1 km, presence of shrubs, prior density of noisy miners and density of noisy miners removed.



## Results

- Noisy miner removals varied substantially in methods and ecological context.
- Modelling revealed no one significant ecological or methodological parameter to explain success across multiple response types.
- Surprisingly, even despite high noisy miner density after the removal, sp. richness and abundance of small birds increased at almost all sites.
- Sites that had a reduction in noisy miner density by > 50% were more likely to have an observed increase in small bird sp. richness (p<0.05). This reduction of noisy miners at sites had no significant influence on increased small bird abundance at sites (p>0.05).



## Management Implications

- Under certain circumstances where immediate, critical relief of their aggressive exclusion is required – noisy miner removals offer a conservation solution.
- Noisy miner density may not need to be reduced to below the critical threshold during removal actions, to be beneficial to small birds. Targeted removals are a management option moving forward.
- The best methodological and ecological conditions for a successful removal remain elusive.
- Further standardised removal trials, complimented by long-term monitoring, is crucial for understanding how noisy miners can best be managed.

*We infer that disrupted cohesion of the demographically complex social structure of noisy miners following the removal may lead to less effective aggressive exclusion of small birds.*

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